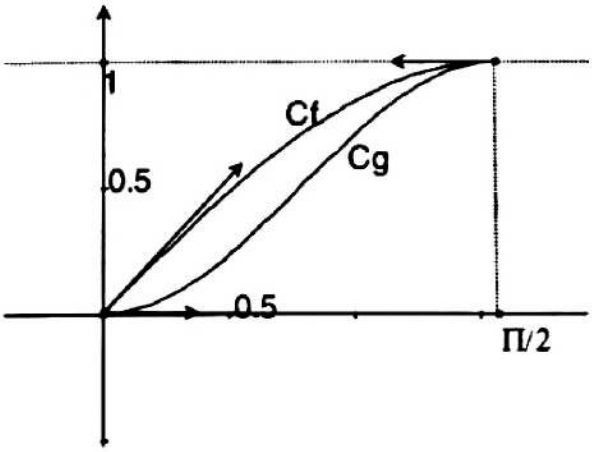
2) $f(x)-g(x)=\sin x(1-\sin x)\geq 0 \quad \forall x\in\left[0,\frac{\pi}{2}\right]$

(ζ_f) est au dessus de (ζ_g)

3)



4) $A=\int_0^{\frac{\pi}{2}}(f(x)-g(x))dx=\int_0^{\frac{\pi}{2}}f(x)dx-\int_0^{\frac{\pi}{2}}g(x)dx$

$\int_0^{\frac{\pi}{2}}f(x)dx=\int_0^{\frac{\pi}{2}}\sin x dx=\left[-\cos x\right]_0^{\frac{\pi}{2}}=1$

$\int_0^{\frac{\pi}{2}}g(x)dx=\int_0^{\frac{\pi}{2}}\sin^2 x dx=\int_0^{\frac{\pi}{2}}\frac{1}{2}(1-\cos 2x)dx$

$=\left[\frac{1}{2}(x-\frac{1}{2}\sin 2x)\right]_0^{\frac{\pi}{2}}=\frac{\pi}{4}$

$A=1-\frac{\pi}{4}$ *u.a*

EX 6 :

$x\in[0,\pi]$

$f(x)=x+\sin x$

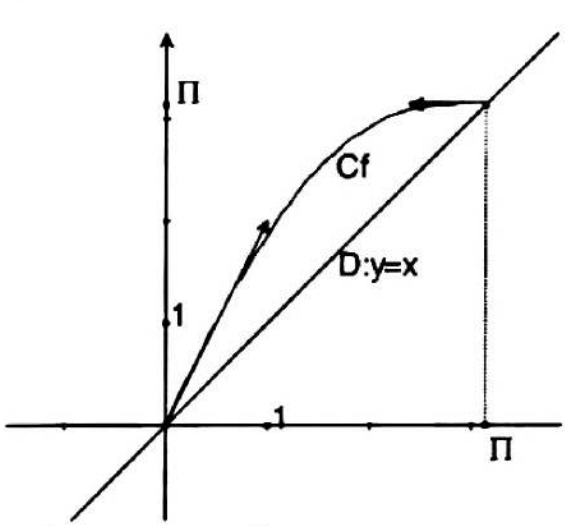
1) $f'(x)=1+\cos x\geq 0$

x	0		π
f'(x)	2	+	0
f(x)	0	↗	π

2) $f(x)-x=\sin x\geq 0$

(ζ_f) est au dessus de D

3)



4) $A=\int_0^{\pi}(f(x)-x)dx=\int_0^{\pi}\sin x dx$

$=\left[-\cos x\right]_0^{\pi}=2$ *u.a*

EX 7 :

$x\in\ ]0,+\infty[$

1) $f(x)=3x^2+\frac{2}{x^3}$

$g(x)=3x^2$

- $f'(x)=6x-\frac{6}{x^4}=\frac{6(x^5-1)}{x^4}$

x	0		1		$+\infty$
f'(x)	||	-	0	+	
f(x)	||	↘	5	↗	$+\infty$

- $g'(x)=6x$

x	0		$+\infty$
g'(x)	||	+	
g(x)	0	↗	$+\infty$

Qarray.tn -Aqra Blech- Qarray.tn